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ABSTRACT

The purpose of this paper is to report progress on the development of an observation instrument useful in characterizing the communication between teacher and student during oral reading instruction. The paper is divided into five major sections: (1) an overview of oral reading instruction at primary levels, (2) a theoretical perspective for instructional communications during oral reading, (3) a critical review of past research into instructional communication during oral reading with an emphasis on the observational systems used, (4) a presentation of the taxonomy called Feedback to Oral Reading Miscue Analysis System (FORMAS), and (5) a preliminary report of findings of studies using this taxonomy. FORMAS is described as an extensive categorization instrument, used to describe teacher/student interactions during oral reading instruction in four categories or clusters: miscue type, student reaction to miscue, teacher verbal feedback, and miscue outcome. A description is provided of six studies currently in progress using variations of the FORMAS taxonomy. Appendixes include categories used in other studies, a sample of the FORMAS taxonomy, and scoring examples for each category. (MKM)

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Observing Communication During Oral Reading Instruction: A Critique of Past Research and a Report on the Development of a Taxonomy of Behaviors Useful in Field Based Research

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Observing Communication During Oral Reading Instruction: A Critique of Past Research and a Report on the Development of a Taxonomy of Behaviors Useful in Field Based Research

There has been in recent years a substantial shift in focus for educational research from the more classical experimental tradition toward field-based/naturalistic paradigms. Investigations which explore the characteristics of instructional communication between teacher and student have been in the forefront of this shift in methodology. The ecologically balanced environment of the classroom is viewed by increasing numbers as the ideal, if not the only, setting in which the communicative behaviors accompanying instruction can be studied to their fullest extent (Willems, 1967, 1972).

This shift in methodology has given rise to an expanding repetoire of research skills ranging from ethnographic and participant observation techniques of data collection (Wilson, 1977) to the structuring of quasi-experimental designs for field-based studies (Cook & Campbell, 1979). Within natural and/or manipulated settings observation of subjects is recognized as one of the most useful techniques for data collection, and instruments for systematic observation

probably form the most rapidly growing set of tools becoming available to researchers. Herbert and Attridge (1975) report that a computer search of the files of the Educational Resources Information Center (ERIC) yielded 399 articles on classroom observation techniques - 381 articles on observation, and 52 items on lesson observation criteria. While this volume of activity is indicative of the attention being directed toward naturalistic research in education, Herbert and Attridge are critical of the quality of the work reviewed. They report that while almost all of these articles were reports of studies which had used observation, most gave little or no emphasis to methodological problems.

Only 11 of the articles found in this search included discussions on observation techniques and reliability of findings. Five dealt with observation and validity, one with observation and sampling, and none with observation and inference. If the evolution toward a field-based research paradigm for instructional communications is to be successful, certainly more rigor will be required in the development of observational instruments to study the variables under question.

The purpose of this paper will be to report progress on the development of an observation instrument useful in characterizing the communication between teacher and student during oral reading instruction. FORMAS (Feedback to Oral Reading Miscue Analysis System) has

been devised in line with the criteria proposed by Herbert and Attridge (1975) to meet a critical need for a more valid and reliable system to observe and study oral reading instruction. This paper is divided into five major sections: (1) an overview of oral reading instruction at primary levels, (2) a theoretical perspective for instructional communications during oral reading, (3) a critical review of past research into instructional communication during oral reading with an emphasis on the observational systems used, (4) a presentation of the FORMAS taxonomy, and (5) a preliminary report of findings of studies using this taxonomy.

A Perspective for Oral Reading in the Primary Grades

Despite periodic calls for its erradication, oral reading persists as a common practice in most elementary classrooms (Epstein & Lynch, 1974; Clark, 1975). Howlett and Weintraub (1978) report that over four-fifths of primary grade teachers responding to their survey engage their students daily in oral reading exercises.

In general, reading authorities have tended to criticize and question the value of oral reading instruction (Spache & Spache, 1977). Authors of introductory reading methods texts seldom include any discussion of the teacher's role during oral reading. Those that do broach the topic seem to draw heavily on indirect research evidence

and intuition in formulating their recommendations for teacher behavior. Guszak (1972) offers suggestions for specific strategies ranging from nonintervention for miscues (i.e., oral reading errors) which do not affect meaning, to telling students to continue reading for context clues when they are puzzled with an unknown word. Fry (1976) recommends that the teacher provide unknown words immediately if the goal is to enhance comprehension and maintain fluency. Goodman (1970) and Smith (1977) would seem to advocate nonintervention as the most effective policy. In the face of such conflicting advice (or the absence of any advice at all), teachers are largely left to rely on their own ingenuity in devising instructional strategies.

What strategies do teachers typically rely on in such contexts? What situational variables influence changes in the kinds of feedback offered? What effects (both short and long term) do these different strategies have on the development of pupil competencies? The research literature offers little or no information useful in answering any of these questions. Past research on teacher/pupil interactions during reading instruction has most often focussed either on the development of comprehension strategies (e.g., Taba et al., 1964; Guszak, 1967; Durkin, 1978) or on more general aspects of classroom instruction including time-on-task variables and management techniques (e.g., Quirk, Nalin & Weinburg, 1974; Evertson & Brophy, 1973). While studies

of this nature support the notion of feedback as a critical element of interaction during instruction, in the final analysis, they leave us with many unanswered questions. Before taking a close look at those few studies which have investigated the issues surrounding oral reading instruction, it is first necessary to develop a theoretical framework for oral reading in the context of instructional communications.

Instructional Communications Accompanying Oral Reading: A Theoretical Framework

The interaction that transpires between teacher and student during the context of oral reading practice can best be understood in terms of an information exchange across a communication channel: the reader recodes print to speech (transmits a signal) while the teacher monitors the signal (receives messages) and provides feedback accordingly. From the student's perspective the purpose for a given oral reading exchange is seldom discussed or set forward formally by the teacher before reading; rather, the nature of the task is defined in large part during the interaction vis a vis the feedback offered. The information contained in this feedback is designed to modify subsequent student behavior. That is, the student is supposed to adjust what he is doing based on what the teacher is telling him to do albeit implicitly in the feedback offered.

Kulhavy (1977) has proposed that feedback aims at two main goals in learning. First, it provides the learner with continuous information about the accuracy with which he is performing a task. Second, feedback can affect errors by telling students when they occur, and then allowing them to engage in corrective activity. In terms of accuracy, two things can occur when students read orally: (1) they can confirm our expectations by responding with the words as we perceive them in the text, or (2) they can miscue, i.e., respond in some way which deviates from our expectations. This second category would also include those occasions in which the observed response is no response (e.g., the student stops reading, asks for assistance, and so on).

Overt feedback, by the teacher, for a correct or an expected response is atypical in most situations. Apparently, it is assumed that the intrinsic reinforcement present in correct identification combined with an absence of a negative response provide together a sufficient level of positive reinforcement. How and under what conditions teachers respond to miscues varies considerably and is dependent on their implicit rules for feedback. Such rules must specify at least the conditions under which they are put into operation as well as the range of alternative response strategies. There appear to be at least three identifiable dimensions to these rules as they relate to oral reading: selectivity, timing, and form. Each of these dimensions will be, in turn, considered and analyzed.

Selectivity of Feedback

Decisions as to the most appropriate form and timing of responses are meaningless without first developing guidelines as to which deviations they should be applied to. The selectivity dimension specifies those conditions under which the response component of the feedback mechanism is put into operation. How selective our feedback strategies are may range from an absolute criterion level where each and every deviation is given a response to a highly selective level where a decision to intervene is based on a consideration of complex situational variables.

The tendency in controlled research studies investigating the effects of prompting and feedback on learning has been to measure performance only in binary terms which thereby elicit a reaction solely on the basis of incorrect or unanticipated responses. Such a practice certainly oversimplifies the relationship between feedback and learning; and, more importantly, does not reflect the complex reality of learning environments where such interactions typically occur. Although a miscue and an oral reading error share a common operational definition, there are qualitative characteristics in which they can differ greatly. Analogously, while there may be any number of incorrect responses to a straightforward literal level question, some answers may be more "right" than others. So, too, with miscues, some deviations from the text are

simply more "acceptable" than others. When one adopts a uni-dimensional mechanism of . . . if deviation then response . . . one reflects a notion that reading is an all or nothing mastery task rather than a progressive movement toward proficiency.

A response mechanism which is keyed toward this notion of movement toward proficiency would likely identify and attempt to build on how well the reader is performing relative to his own needs. It would be a difficult though feasible task for a teacher to identify and weigh any number of situational variables which might influence the decision to respond or not respond including such factors as the student's ability level, the difficulty of the text, and the purpose of the reading exercise. The greater the number of variables one might incorporate into a decision making scheme, however, the more complicated the matrix to be manipulated. It would seem a reasonable hypothesis that given our limited processing capabilities and the rapidity with which feedback decisions must be made, the number of variables a teacher considers and weighs is likely quite small and centers on characteristics of the immediate stimuli.

Timing of Feedback

The decision to respond is only a first step. Consideration must then be given by the teacher to the time frame in which it is

offered. Feedback can be given immediately or it can be delayed for some period (e.g., after the student has finished a sentence or paragraph). The concept of wait-time as proposed by Rowe (1972, 1974) in studies of teacher/student questioning behavior can be readily adapted to an understanding of the potential effects of timing of feedback during oral reading. Rowe (1974) identifies two variables of wait-time: the time allowed to a student to begin a reply to a teacher's question and the time following a student statement prior to a teacher's reaction (Figure 1). Rowe (1972), in a study of teachers trained to increase wait-time, identified changes in student performance including an increase in the length of responses and a decrease in the number of failures to respond. Changes in teacher behavior included an increase in response flexibility and greater variety in questioning patterns.

Applying this same structure to an analysis of feedback during oral reading, we can identify and define two classes of wait-time (A) the time allowed to the student between his last correct response and the next one; and (B) the time following a student miscue prior to a teacher's reaction (see Figure 1). Although there has been little research to date investigating the effects of changes in wait-time intervals on oral reading performance, it is possible to speculate on the possible outcomes.

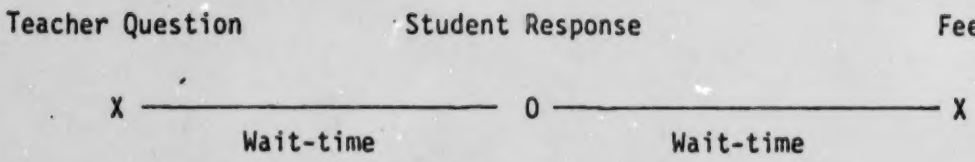


Figure 1 Wait-time in teacher questioning behavior

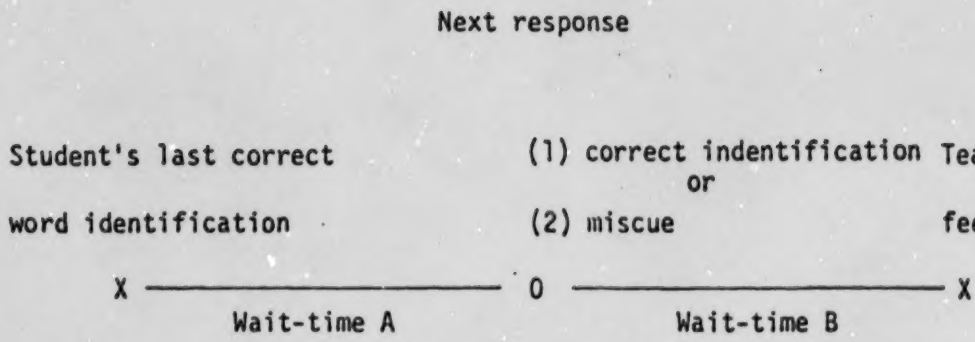


Figure 2 Wait-time in teacher feedback during oral reading

Adopting Smith's (1971) perspective from signal detection theory we would expect that as teacher wait-time A increases, the number of miscues as well as the number of correct identifications will increase. Smith argues that these two possibilities are tied directly together. That is, if the objective is to increase the number of correct responses, we might need to tolerate and even encourage an increase in the number of miscues.

Insight into the effects of an increase in wait-time B can be gained through a consideration of the Delayed Retention Effect (DRE). This effect occurs when learners have feedback delayed for some period. Subjects for whom feedback is delayed, generally show greater recall than for those who are given immediate feedback. Kulhavy (1977) explains that "When a student makes an error and receives feedback immediately, the chances of interference between correct and incorrect choices is high, simply because the item stems are identical and the response antagonistic" (p. 223). However, when a delay is placed between the error and feedback, incorrect responses are forgotten and the likelihood is greater that the correct answer will be remembered. DRE research has also demonstrated that feedback not only works to identify errors, but in appropriate tasks leads subjects to correct themselves (Kulhavy & Anderson, 1972). Similarly, as wait-time B is increased in oral reading, accuracy should be effected positively

through an increased opportunity for student self-correction as the force of context grows stronger. An added benefit of an increase in wait-time B might also be that the observer is given more time both to consider selectivity criterion (i.e., whether to respond or not) as well as more time to reflect on the most appropriate form of feedback.

Form of Feedback

The form of feedback provided by teachers to oral reading miscues typically range from a simple "no" or unacceptable response to the presentation of substantial corrective information in the form of prompts. Duell (1968) defines prompting as the pairing of a cue, the stimulus that is to control, with a prompt, a stimulus which already controls or partially controls the desired response. The goal is to shift control of the response from the prompt to the cue with which the prompt is paired.

Research reported by Anderson, Brophy and Evertson (1977) as part of a larger study into general characteristics of teacher effectiveness (Anderson & Brophy, 1976); and Ogdon, Brophy & Evertson,(1977) offers insight into the effects of various forms of prompting. They classify prompting strategies into two general types: terminal and sustaining. Terminal feedback during oral reading would include such

actions as the teacher giving the appropriate word, the teacher asking another student to supply the word, or another child calling out the word before the teacher can respond. Sustaining feedback includes teacher actions which call for the student to try alternatives based on closer examination of cues such as initial and final letters, word length, the meaningful context, and so on. Their study was designed to investigate the effects of these two different forms of teacher feedback as related to residual gain scores in reading achievement over a one year period. They found that terminal feedback to inappropriate responses (in the form of supplying the correct response) was negatively related to learning. Sustaining feedback (in the form of clues or helping with simple questions) was positively related to gains.

The specific form of sustaining feedback to be offered can be further delineated in terms of the "level" of response being cued. That is, where are we asking the student to focus attention? Allington (1978) identifies and provides examples of three levels of what could be termed sustaining prompts:

> Graphemic--teacher comments which direct the reader to attend to a visual aspect of the word . . . (e.g.) What's the first letter?
> Phonemic--teacher comments which direct the reader to attend to a grapheme-phoneme correspondence . . . (e.g.) Sound it out.
> Semantic and Syntactic--teacher comments which direct the reader to attend to either eyntactic or semantic aspects of the sentence . . . (e.g.) Does that make sense? (p. 6)

To summarize, what we observe when a teacher interacts with a student during oral reading is not haphazard or random behavior, but a manifestation of a set of implicit rules that teacher has devised. These rules likely have certain dimensions which roughly correspond to those characterized in this section as selectivity, timing and form. Using this framework for feedback, it is possible to examine the existing research (and its accompanying methodology) on oral reading instruction.

A Critical Review of Past Research into Instructional Communications during Oral Reading with an Emphasis on Observational Systems Used

Empirical studies which have investigated the nature of teacher feedback and its relationship with pupil reading miscues, in an elementary school oral reading context, are examined in this section. Each study is described in terms of its purpose, methodological procedure, and results. A brief critique follows the description of each investigation with a focus on methodology and instrumentation.

Epstein and Lynch (1974) compared the effects of a five step teacher cueing strategy (Appendix A) on pupil oral reading miscues with the effects of responses typically used by teachers when providing feedback during oral reading. Students were randomly selected from a pool of educable mentally retarded (EMR) children, identified by a

word recognition screening test as readers with a word recognition level of approximately 1.5. The mean I.Q. of the pupils was 73.5 and they ranged in age from 9 - 9 to 13 - 10. Eight teachers each taught a group of five students alone in two oral reading lessons, first in the control condition, then a week later using the cueing strategy. Six additional teachers each taught five students from the same pool of EMR children under the experimental condition only. It was not clear as to whether or not the teachers had taught the pupils prior to the experiment. For both experimental and control conditions, each teacher received a letter one day in advance explaining the procedure to be followed. Teachers in the control condition were asked to make their "normal responses" when responding to pupil's miscues. Teachers in the experimental condition read a detailed explanation of the cueing strategy and completed a brief written test. Immediately prior to each lesson the teacher reviewed the procedure with an investigator.

The reading selections were two specially developed high interest stories with reported readability levels (Spache, 1958) of 1.6 and 1.7. The teachers "were informed of the purpose of the study" and asked to organize the reading environment as they were accustomed to doing. All lessons were observed by a coder and audio-taped, while a sample of lessons also was videotaped. Each child's pretest measure

was the number of errors made during his oral-reading turn. The post test measure, obtained the following day, was the number of errors the child made when re-reading aloud the same story to a researcher. Two criterion measures were used to evaluate the results of the study: Total errors on the posttest, and the difference between pre and posttest scores. Analysis of variance and analysis of covariance procedures were used to compare the effects of the control and experimental conditions. The performance of the experimental students on both measures was significantly better than the performance of the control students. The authors conclude that slightly retarded children learn more new words from teacher responses to oral reading errors which are highly consistent and structured than when teachers use "the normal variety of cueing behaviors."

In addition to the experiment, the researchers recorded the behaviors of the students and teachers in the control condition. An "accurate record" of pupil errors was kept, while teacher feedback behaviors were coded with an eight category instrument developed from observations of pupil-teacher interactions during a pilot study (Appendix B). Both single and multiple feedback strategies were defined as "a string of cues which might or might not be interspersed with pupil responses . . . ." Each type of strategy was judged to be "successful" or "unsuccessful" on the basis of whether or not the strategy led the

student to correctly identify the word. The authors, however, did not report the type of miscues recorded nor the feedback behaviors which teachers used during the control condition. A frequency chart revealed that the sample of eight teachers tended to use more multiple feedback strategies (N = 97) than single feedback strategies (N = 79), the latter tending to be slightly more successful than the former.

Though few of the findings reported in the Epstein and Lynch investigation contribute to our understanding of the nature of teacher feedback or its relationship to oral reading miscues, an analysis of the feedback categories used by the authors contributes to the development of an observation instrument. The eight categories and the single-multiple dimension of teacher feedback behavior identified by Epstein and Lynch provided the means for obtaining a more detailed analysis of teacher feedback during oral reading than previously was possible. Closer examination of the categories of teacher behavior, however, suggest the need for some conceptual refinement of the classification "no feedback." It is difficult to imagine in an oral reading context how a teacher might not provide feedback to pupils. Perhaps the distinction between verbal and non-verbal feedback could be used to produce a more representative category labelled "no verbal feedback."

Also, Niles et al., (1976) investigated experimentally the effects of teacher feedback within an oral reading context. They compared the influence of an immediate-teacher-feedback condition and a no-verbal-teacher-feedback condition upon the oral reading miscues of fourth grade pupils. Twenty-four pupils were randomly selected from a population of "average" fourth-grade readers in a suburban school district. Readers were classified as average on the basis of both teacher judgement and an achieved grade equivalent score between 4.0 and 4.9 on the reading subtest of the SRA Achievement Test. Each pupil read to the same randomly assigned preservice teacher for ten to fifteen minutes on each of four consecutive days in materials chosen by the teacher: twelve students under a taped uninterrupted condition, and twelve students under a taped interrupted condition in which miscues were brought to the reader's attention. A teacher response for each of ten selected miscues was developed (Appendix C). All twenty-four preservice teachers were trained in the procedures for the interrupted condition. On the fifth day each pupil read the same story (readibility "fourth year") under his assigned and taped treatment condition. The pupils' reading performances were coded according to the Reading Miscue Inventory (Goodman & Burke, 1972) procedure for graphic and sound similarity, grammatical function, grammatical acceptability, semantic acceptability, meaning change and general comprehension (re-telling the story).

Statistically significant results of the analyses (Mann-Whitney U Test) indicated that the miscues of the pupils receiving immediate teacher feedback were graphically and phonetically more similar to the expected response ($p < .001$) and gramatically more acceptable ($p < .01$) than were the miscues of the pupils in the uninterrupted condition. The latter group of students' miscues, however, changed the meaning of the text to a lesser degree ($p < .001$). This group's scores also were higher ($p < .001$) on re-telling the story. The authors concluded that teachers must prudently consider if and when teacher feedback should be provided during oral reading. Whether or not miscues violated the meaning of a passage, and how best to encourage a reader to develop his own strategies for dealing with miscues were two significant questions which needed to be addressed before teachers could make the appropriate decisions.

The experimental evidence reported in the Niles et al., (1976) study suggested that there might be negative effects associated with immediate teacher feedback during oral reading. Several limitations in the design of this study, however, should be considered when interpreting the data. Since there is no mention of the previous instruction experienced by the children and no pre-assessment of pupil behaviors, it is possible that the reported differences in student reading bahavior were influenced significantly by pre-treatment

differences among students. That students read in materials chosen by the teachers, is an additional design characteristic which may have reduced the rate of miscue to a level where insufficient opportunity for teacher feedback to influence pupil oral reading strategies occurred. Though the study alerts researchers and teachers to potential negative effects of immediate teacher verbal feedback, the design of the investigation and absence of a systematic observation instrument for coding behavior donot permit one to distinguish the separate influences of teacher feedback and the time span between miscue and feedback.

Anderson et al., (1977) experimentally investigated the effects of teacher feedback during oral reading in one major section of the process-product "First Grade Reading Group Study." The First Grade Study was designed to test whether or not twenty-two specific teaching principles were related to learning gains in students, as measured by the differences between pre and posttest scores on the Metropolitan Achievement Test (MAT). The Anderson et al., (1977) paper reported the association between teacher responses to individual student answers during a reading group lesson and student learning.

Three groups of teachers (N = 28), two experimental and one control, were involved in the study. An observed group (N = 10) was instructed in the twenty-two principles during October 1974 and agreed

to use them in their instruction throughout the year. Four of these principles guided teacher feedback to children's answers during a reading group lesson (e.g., when a correct answer has been given, make sure everyone has heard and understood it). A second group (N = 8) received a similar treatment but was unobserved. A control group (N = 10) was given no special instructions about how to teach and was observed during the year. Over the year, approximately fifteen to twenty observations of each classroom (treatment-observed and control groups) were conducted with a coding system. Seven types of teacher feedback were coded during oral reading (Appendix D). These included: no feedback, emphasis, praise, criticism, specificity of either praise or criticism, terminal feedback and sustaining feedback. Terminal feedback was defined as a teacher response to a child's incorrect answer which ended the child's opportunity to answer a question by providing the answer or having it provided. The authors defined sustaining feedback as a teacher response to a child's incorrect, "I don't know" or non answer which provided the child with another opportunity to respond. During the reading group lesson a coder sequentially recorded the type of answer (incorrect, don't know, or no response) given by a child, the type of verbal teacher feedback delivered and whether or not sustaining feedback resulted in an improved student response. "Improvement" was coded under two conditions; (1) whenever sustaining

feedback resulted in any student response following no response and, (2) whenever sustaining feedback resulted in some correct student answer following an incorrect answer. Annual totals of feedback behaviors for each teacher were standardized to yield proportions. For each teacher the gain scores for her reading group students were averaged to yield four indices of teacher effectiveness, one for each subtest of the MAT. Because of the small sample of teachers a level of .10 was selected for all tests of statistical significance.

In general, the analyses of the data suggested that sustaining feedback was correlated positively with learning while terminal feedback was correlated negatively. Sustaining feedback to incorrect answers, no response or "don't know" answers during reading instruction was significantly related to learning. While all teachers used terminal feedback, the most effective teachers used sustaining feedback a greater proportion of the time than less effective teachers. The proportions of all incorrect and all no-response answers which were improved through sustaining feedback were positively related to achievement. It was reported that all teachers were improving answers some of the time, and no teachers were improving answers all of the time. No one specific type of sustaining or terminal teacher behavior was found to be more effective than another.

While the Anderson et al., (1977) paper contributed to our undrestanding of the nature of teacher feedback, it revealed the limitations of general classroom interaction coding systems when applied to specific subject contexts. The categories of terminal and sustaining teacher feedback enabled researchers and teachers to classify spearate verbal teacher behaviors in terms of the similar response opportunities they provided children. Though the authors were sensitive to the variation in contexts within a reading lesson (they differentiated between oral reading and other reading activities) their coding system sometimes could not be used to quantify student behaviors which were specific to the oral reading context. All student errors, whatever the context, were coded "incorrect student answer." In the particular context of oral reading there was no means for identifying student deviations from the text such as substitutions, omissions and insertions. Further, in the coding scheme used, an event was noted upon the initiation of teacher behavior, not a student miscue. Such that, if a student made a miscue which was unattended to by the teacher, it was ignored under this system. Researchers wishing to observe student teacher interactions within an oral reading context need to adopt or develop an observation instrument designed specifically for the purpose of recording interactions during oral reading which focuses on both teacher and student behaviors.

Terry & Cohen (1977) investigated teacher-pupil interactions within an oral reading context. While they did not use the sustaining-terminal differentiation between teacher feedback, they did measure teacher and pupil behaviors with part of a category system developed

specifically for investigating interactions within the oral reading context. Teacher prompts and pupil responses to prompts were recorded. Terry & Cohen compared the type and success rate of "responses (or prompts)" given by special education pre-service teachers to "mildly handicapped low level" readers. Pupils "were drawn" from regular and special education public school classes. Second and third grade pupils read at least one year below grade level, while fourth through sixth grade pupils read at least two years below grade level. Nineteen trainee teachers, each paired with one pupil, tutored a child for one hour twice a week after school during a six month tutoring program. Within each session the pupil read to the teacher for fifteen minutes, receiving feedback on the basis of the miscues made. All pupils read approximately one grade level above their instructional level to ensure that a sufficient number of miscues requiring feedback would occur. The remaining time was spent on developing word recognition and comprehension skills. Throughout the tutoring program each trainee teacher received instruction based on a prompting module which recommended responding only to miscues that changed the text's meaning and using structural analysis, attention, pattern, phonics or context prompts (Appendix E).

For the purposes of the study the students were divided into high and low groups on the basis of a score which was calculated by

taking the average of the sum of the readabil level of the student's reader and the student's total reading score of the Woodcock Reading Mastery Tests. Data for the study was collected over four consecutive lessons during the last three weeks of the program. Ten categories of teacher prompts and two categories of pupil responses to prompts were used to code teacher prompting and pupil response behaviors. The authors of the observation system (Brady, Lynch & Cohen, 1976) classified four of the teacher prompt categories as look-prompts, four as sound-prompts and two as meaning-prompts. An interjudge reliability coefficient of .82 was reported. All frequency data for teacher prompts and success rates were converted into percentages. A repeated measures analysis of variance compared the two groups of readers over the ten different prompting categories. Pair-wise comparisons of prompts were made with Tukey's tests.

The study reported three major findings, First, the percentage of time the five recommended prompts were given by teachers differed significantly between the high and low readers. Higher level readers received a higher percentage of attention prompts, while lower level readers received a higher percentage of context and pattern prompts. Second, the success a child had with decoding a word immediately following a prompt, varied according to the child's reading level. "Better" readers decoded words more successfully with a wider variety

of teacher prompts. Attention and structural teacher prompts were associated with the highest decoding success rates for both groups of readers. Finally, the authors concluded that "teachers" trained in the use of a variety of prompting behaviors were able to be flexible in the patterns of prompts they used with children preforming at different reading levels.

The Oral Reading Observation Schedule (OROS), part of which was used in the Terry & Cohen investigation, was the first instrument which was designed to provide researchers and teachers with the opportunity to obtain a detailed understanding of the nature of feedback used by teachers during oral reading. Consequently, Terry & Cohen were able to analyze ten different types of teacher feedback and study the relationship of each to pupil response to prompts. The two categories for recording pupil response to prompts also increased the precision with which researchers could quantify this student oral reading behavior. Prior to this development, researchers such as Epstein & Lynch (1974) had coded only student correct identification of the miscue.

While OROS represents a significant advancement over past efforts at observing oral reading instruction, there are certain

shortcomings in this instrument relative to some of the critical dimensions of feedback discussed in the previous section. The specific weaknesses of OROS relate primarily to an inadequate treatment of (1) miscue tpyology, (2) how the student is responding to his own miscue, and (3) the timing of the feedback.

Though the observation instrument used in the Allington (1978) study was not as detailed as OROS, a previously unmeasured dimension of teacher feedback, point-of-interruption, was assessed. Allington examined the "interruption behaviors" of twenty volunteer primary grade teachers from three school districts to clarify whether or not the miscues of "good" and "poor" readers were responded to differentially. Each teacher identified the best and worst readers and conducted a taped oral reading session with each group. Six teachers taped their lessons and the remainder were taped by an outsider. All pupil responses which deviated from the text were coded as errors. No miscue categories were reported in the paper. Teacher interruption behaviors were categorized according to "point" and "direction" of interruption (Appendix F). The point-of-interruption categories included: no interruption, at error, and two post-error categories. The direction of interruption categories included: graphemic, phonemic, semantic and syntactic teacher pronunciation. Two researchers coded the taped pupil-teacher interaction. Disagreements about how a

behavior should be coded were resolved by repeated listening to the taped instance of behavior until the coders could agree upon a single category.

Comparison of the proportion of interruptions for poor and good readers, using an analysis of variance with repeated measures, suggested that teachers were more inclined to interrupt the oral reading of poor readers ($p < .01$). Poor readers were more likely to be interrupted at the point of error. Regardless of grade level or "place" in the learning-to-read process the most common type of interruption behavior was for the teacher to provide the word. The teachers tended to cue poor readers to graphemic cues slightly more than they did good readers. Finally, Allington discusses the range of individual teacher interruption behavior across the two reading groups.

Allington's (1978) investigation alerts researchers and teachers to a potentially significant dimension of teacher behavior. Data reported in the study suggests that point-of-interruption is a dimension which may account for differences in teacher feedback procedures during oral reading. Investigations focused on measuring the characteristics of teacher feedback during oral reading, therefore, should include this dimension of teacher behavior in the selected observation system.

The review of literature suggests that the number and scope of the studies investigating the nature of teacher feedback during oral

reading at the elementary school level has been limited. Four of the reviewed studies have focused primarily on the effects of (1) specific feedback behaviors (Anderson et al., 1977; Niles et al., 1976) or (2) a training program (Epstein & Lynch, 1974; Terry & Cohen, 1977) rather than on the identification of the characteristics of the feedback behavior that teachers use during oral reading. The fifth study (Allington, 1978), perhaps somewhat prematurely, attempted to discover the nature of teacher feedback given to "good" and "poor" readers during oral reading. All reviewed investigations, however, have contributed significantly to future inquiry into the nature of teacher feedback through the identification of different classifications and dimensions of verbal teacher feedback behavior during oral reading.

Feedback to Oral Reading Miscue Analysis System (FORMAS)

FORMAS is an extensive categorization instrument, useful in describing teacher student interactions during oral reading instruction. The FORMAS taxonomy has evolved after a careful study of the existing instrumentation used in the studies reviewed in the previous section. The taxonomy is divided into four major clusters of observable behavior which provide the general focus for collecting

relevant data. Within each cluster there are a varying number of levels which address specific qualitative characteristics of that cluster. An overview of each of these four clusters will be provided to orient the reader to the basic structure of the taxonomy which is presented in its entirety in Appendix G.

Cluster I: Miscue Type

Following Goodman (1972), a miscue is defined as an observed response in oral reading which differs from an expected response. All miscues which occur doing oral reading are coded across the four clusters of the taxonomy. Level IA identifies eight categories of miscues (Appendix D). These categories (as is the case within all levels of the taxonomy) are intended to be both an exhaustive and mutually exclusive categorization scheme. For purposes of this overview, the IA categories seem sufficiently self-descriptive with the possible exception of category eight--multiple miscue. This category is used to code complex miscues involving consecutive text words. Level IB informs as to the degree that the miscue has changed meaning from that intended in the text. Note that a mispronunciation miscue is always coded in level IB as a nonmeaningful utterance. Calls for help, hesitations, and multiple miscues are not coded '(NC)' in Level IB. That is, the question of meaning changes

does not logically apply to these categories of miscues. The four additional levels within Cluster I address: syntactic acceptability, grapho-phonic similarity, morpheme level, and dialect interference.

Cluster II: Student Reaction to Miscue

The principal focus for this cluster is on how the student is attempting to deal with his own miscue prior to any intervention from the teacher. There are two levels identified in this cluster. The five categories within Level IIA seem sufficiently self-descriptive of different kinds of reactions to be considered. Level IIB addresses solely the IIA category of "repetition," i.e., whether the repetition behavior on the part of the student is moving systematically toward or randomly away from the identification of the text word.

Cluster III: Teacher Verbal Feedback

The teacher's behavior toward the miscue and student reaction to the miscue provides the focus for this cluster. Six levels are specified. The "type" of feedback (IIIA) is divided among no verbal feedback, terminal feedback (i.e., providing the appropriate word), and sustaining feedback (i.e., focusing attention and in some cases prompting the student with cues). Form

of feedback (Levels IIIB and IIIC) for this cluster apply only to the level A sustaining feedback category. The attending form of feedback (Level IIIB) is limited to teacher behaviors which call attention to a miscue with no specific cues being provided. While the first category includes nonoccurrence of attending feedback, the incidental category refers to attending feedback behaviors which are not used to elicit a student response. In comparision to the category of incidental teacher feedback behavior the third and fourth categories (significant-initial and significant-interspersed) refer to teacher feedback behaviors which are given with the intention of eliciting a student response. Significant-initial teacher feedback behaviors initiate interaction over a miscue and significant-interspersed teacher feedback behaviors occur at some point during the interaction other than at the beginning. The prompt form of feedback (Level IIIC) includes teacher behaviors which focus student attention upon specific textual cues. The first category applies to nonoccurrence of teacher prompt behaviors, while the simple grapho-phonic category refers to prompts which cue exclusively to sound/symbol relationships. The simple context category refers to prompts which cue toward syntactic and/or semantic levels. The two remaining "complex" categories of IIIB relate to prompts which cross over these two levels. In complex grapho-phonic type of sustaining feedback, the grapho-phonic

cues are offered first and then there is movement toward a context cue. In the case of the complex context category, the context cue begins at a semantic or syntactic level and then shifts to a grapho-phonic level. Level IIID helps specify at what point the teacher initially offers feedback (either sustaining or terminal) relative to the location of the miscue in the text. Level IIIE specifies the timing of the feedback recorded in terms of the number of seconds elapsing between the occurrence of the miscue and the teacher's response. The final level of Cluster III records the total amount of time spent on sustaining feedback by the teacher before the student resumes reading.

Cluster IV: Miscue Outcome

This fourth and final cluster focuses on what happens ultimately with respect to the miscues that have been observed. Level IVA specifies who finally identifies the text word in question or if the miscue is simply left uncorrected. The next two levels parallel in content the last two levels of Cluster III in terms of the point of identification and timing of identification. The final level of this cluster specifies the existence of post identification discussion related to the target word.

Research Utilizing the FORMAS Taxonomy

Six studies are currently in process using variations of the FORMAS taxonomy to study oral reading instruction. These studies are

in various stages of completion.

Three of the studies center on a data collection effort conducted at The University of Texas at Austin during the summer of 1979. The subjects were two groups of teacher pupil dyads engaged in an oral reading instructional exercise. One group was composed of eighteen preservice teachers each reading with two different elementary children on two different occasions. The other group was composed of twenty inservice teachers each reading with a single elementary student. All students in both groups read from at least two different levels of text: one relatively easy (instructional level) and one difficult (frustrational level). All sessions were videotaped. The first study with this data is making a general comparison of performance between the preservice and inservice teachers with respect to verbal feedback behaviors. The second study is focusing on an in depth analysis of the sustaining feedback employed by inservice teachers. The analysis will look at both the contingencies surrounding the use of various forms of sustaining feedback as well as look at the adequacy of the FORMAS taxonomy in characterizing this most important dimension of teacher verbal feedback. The third study is focusing on the stability of teacher feedback behavior across different contexts (i.e., different difficulty levels, and different students). This third study will also examine the effects of certain teacher feedback profiles on subsequent student performance. Inter-coder reliability using the FORMAS taxonomy with the videotapes has been consistently above the .85 level on agreements.

The three remaining studies are field-based. Teachers working with reading groups in the natural setting of the classroom are being

observed during oral reading instruction. Both videotaped and audio taped recordings are being analyzed using a modified FORMAS instrument suitable to field-based research (Appendix H). The numbers of categories in this version have been reduced while the scope has been expanded to allow for the coding of group interaction. In addition to gathering some basic descriptive information of teacher verbal feedback during oral reading these studies are also looking at teacher decision making strategies.

APPENDIX A

Five Step Cueing Strategy Used in the Experimental Condition of the Epstein and Lynch 1972 Study

1. Student makes error--teacher immediately pronounces word correctly.
2. Teacher rereads sentence up to and including cued word.
3. Student covers text with card, leaving the "error" word uncovered.
4. Student looks at word and correctly pronounces it.
5. Other students point to word and say it together. Student continues to read.

APPENDIX B

Instrument for Measuring Teacher Feedback Behaviors During the Control Condition of the Epstein and Lynch 1974 Study

Categories	Examples
1. No feedback	
2. Negative feedback--prompting	that's backwards, start sentence over
3. Praise and encouragement	
4. Context--hint at meaning	it means the same as . . .
5. Structural Analysis	tells or spells part of word
6. Phonic	rhyming with; it's O not i
7. Tells	gives word
8 Spells	

APPENDIX C

Teacher Responses to Oral Reading Errors for the Niles et al., 1976 Study

Errors	Examples
1. Mispronounciation--	sound it out
2. Omissions--	you skipped a word
3. Substitution--	does it really say that?
4. Reversals and word order--	does it really say that?
5. Hesitation--	try it
6. Intonation--	is that the way to say that?
7. Self-corrections--	good!
8. 5 second hesitation--	supply word
9. Incorrect self-correction--	supply correct response
10. Repetition--	nothing

APPENDIX D

Teacher Feedback Categories in the
Anderson et al., 1977 Study

1. No feedback--The teacher did not acknowledge the child's answer at all.
2. Emphasis--The teacher did something to make sure the rest of the group heard the answer and understood, usually by repeating it or having the child repeat it.
3. Praise.
4. Criticism.
5. Specificity of either praise or criticism--The teacher noted what particular behavior was being praised or what specific.
6. Terminal feedback offered when the child was not correct:
   a. Teacher gives answer.
   b. Teacher asks another child.
   c. Another child calls out the answer before the teacher acts.
7. Sustaining feedback given to answers that were not correct:
   a. Teacher repeats the question to the same child.

b. Teacher gives a clue, simplifying the question for the same child.

c. Teacher essentially gives the same child the answer in the form of a very simple question. (This is to be distinguished from giving the answer without eliciting it from the child, which is a category of terminal feedback.)

APPENDIX E

Categories of Teacher Prompts and Pupil Responses to Prompts Used by Terry and Cohen 1977

1. Letter Name(s) Teacher Prompts. The teacher names, or asks the pupil to name, a letter (or several letters) within the text word or miscue.
2. Spelling Teacher Prompts. The teacher spells, or asks the pupil to spell, the text word or miscue.
3. Structural Teacher Prompts. The teacher tells, or asks the pupil to tell about the text word's structural components, i.e., its syllables, base, or inflected ending, or kind of word (compound or contraction).
4. Attention Teacher Prompts. The teacher focuses the pupil's visual attention on all of a text word.
5. Isolated Sounds Teacher Prompts. The teacher says, or asks the pupil to say, the sound for a letter(s) in the text word or miscue in isolation.

6. Sound Out Word Teacher Prompts. The teacher sounds out, or asks the pupil to sound out, all or most of the text word by saying an isolated sound for each letter.
7. Pattern Teacher Prompts. The teacher tells, or asks the pupil to say, a word which rhymes with the text word (or says a group of letters in it), then substitutes a consonant from the text word into the rhyming word and asks the pupil to say it.
8. Sounds Within Words, Phonics Rules Teacher Prompts. The teacher tells, or asks the pupil to tell, what sound(s) the letter(s) in the text word make by saying another word containing the same sound or by telling, or asking, about a phonics rule.
9. Meaning Teacher Prompts. The teacher tells, or asks the pupil to tell, the meaning of a text word.
10. Context Teacher Prompts. The teacher gives, or asks the pupil to give, the meaning of the sentence or story to help the pupil figure out text words.

---

11. Correct Answer. The target pupil correctly answers a teacher prompt without giving the text word or a no meaning change miscue for the text word.

12. Exact Word/No Meaning Change Miscue. The target pupil gives the exact text word or a no meaning change miscue after a teacher prompt.

APPENDIX F

Direction and Point of Interruption Categories
Used by Allington, 1978

Point of Interruption Categories:

None - the teacher made no verbal response to the error.

At Error - the teacher interrupted the reader at the point of the error. Teacher comments when students hesitated or paused at a word were scored as "at error" responses.

After Error But Not At Phrase + the teacher interrupted the the reader after the error but not at phrase or sentence boundary.

After Error At Phrase Or Sentence Boundary - the teacher allowed the reader to continue reading after the error but interrupted at a phrase boundary or at the end of the sentence.

Direction of Interruption Categories:

Graphemic - teacher comments which directed the reader to attend to a visual aspect of the word were scored as graphemic. Agreed upon comments included: What was the first letter? Look at that

letter again. That's not a "b." No, it's another word that looks like that, etc.

Phonemic - teacher comments which directed the reader to attend to a grapheme-phoneme correspondence, or to produce the appropriate phoneme were coded as phonemic. Agreed upon comments included: Sound it out. What sound does that letter make? It's the short sound. Blend those sounds together, etc.

Semantic and Syntactic - teacher comments which directed the reader to attend to either syntactic aspects of the sentence, or story, were coded as semantic-syntactic. Agreed upon comments included: Does that make sense? Read that again. Are you sure that's what it says? That doesn't sound right to me, etc.

Teacher Pronounce - teacher simply provided corrected pronunciation of word.

Other - All responses which were not categorizable in any of the preceding categories were coded other and a brief written description of the verbal behavior was noted. Agreed upon comments included: That's not that word. Try to get that word. You know that word, etc.

Cluster I: Miscue

Level A - Type

1. Insertion
   The reader inserts a word or an affix in the oral rendition which is not present in the text.

   Example 1
   O. R. own
   Text: "We can roll him over to Jack's ∧ yard."

   Example 2
   O. R. s
   Text: "That would be much better than asking your mother ∧ to come here

2. Omission
   The reader omits a word or an affix in the oral rendition which is present in the text.

   Example 1
   O. R.
   Text: "How long will (the) snowman last?"

   Example 2
   O. R.
   Text: "Then Tom turned) to Bob and asked, . . ."

3. Substitution
   The reader substitutes a word or an affix for one which is already present in the text.

   Example 1
   O. R. showed
   Text: "Look, Jack!" shouted Tom."

   Example 2
   O. R. s
   Text: "Then Tom turned to Bob and asked . . ."

4. Mispronunciation
   The reader substitutes a partial or complete nonsense utterance for a word or affix which is present in the text.

   Example 1
   O. R. *shufed
   Text: "Look, Jack! shouted Tom."

   Example 2
   O. R. tu
   Text: "Then Tom turned to Bob and asked . . ."

5. Call for help
   The reader stops before attempting a word and verbally requests teacher assistance.

   Example 1
   O. R.
   Text: "Look at those (11) wheels!"

Appendix G

The FORMAS Taxonomy

(dyadic format)

Cluster I Overview

Miscue 6 digit number

Level A Type	Level B Meaning Change	Level C Syntactic Acceptability	Level D Grapho-phonic Similarity	Level E Morpheme Level	Level F Dialect Interference
1. Insertion	1. M 2. S 3. NM	1. NA 2. MINA 3. MODA 4. HA	NC	1. A 2. R 3. B	1. Y 2. N
2. Omission	1. M 2. S 3. NM	1. NA 2. MINA 3. MODA 4. HA	NC	1. A 2. R 3. B	1. Y 2. N
3. Substitution	1. M 2. S 3. NM	1. NA 2. MINA 3. MODA 4. HA	1. NS 2. SIS 3. SFS 4. STIS 5. STFS 6. STS 7. STTS	1. A 2. R 3. B	1. Y 2. N
4. Mispronunciation	3. NM	NC	1. NS 2. SIS 3. SFS 4. STIS 5. STFS 6. STS 7. STTS	1. A 2. R 3. B	NC
5. Call for help	NC	NC	NC	NC	NC
6. Hesitation	NC	NC	NC	NC	NC
7. Repetition	NC	NC	NC	NC	NC
8. Multiple Miscue	NC	NC	NC	NC	NC

Cluster I: Miscue

Level A - Type

1. Insertion
   The reader inserts a word or an affix in the oral rendition which is not present in the text.

   Example 1
   O. R.
   Text: "We can roll him over to Jack's own ∧ yard."

   Example 2
   O. R.
   Text: "That would be much better than asking your mother s ∧ to come here

2. Omission
   The reader omits a word or an affix in the oral rendition which is present in the text.

   Example 1
   O. R.
   Text: "How long will (the) snowman last?"

   Example 2
   O. R.
   Text: "Then Tom turned (ed) to Bob and asked, . . ."

3. Substitution
   The reader substitutes a word or an affix for one which is already present in the text.

   Example 1
   O. R. showed
   Text: "Look, Jack!" shouted Tom."

   Example 2
   O. R. s
   Text: "Then Tom turned to Bob and asked . . ."

4. Mispronunciation
   The reader substitutes a partial or complete nonsense utterance for a word or affix which is present in the text.

   Example 1
   O. R. *shufed
   Text: "Look, Jack! shouted Tom."

   Example 2
   O. R. tu
   Text: "Then Tom turned to Bob and asked . . ."

5. Call for help
   The reader stops before attempting a word and verbally requests teacher assistance.

   Example 1
   O. R.
   Text: "[illegible] (H) [illegible]

6. Hesitation

The reader pauses before attempting a word for at least 3 seconds or the teacher intervenes before the three second period is reached.

Example 1

O. R. 3
Text: "Look, Jack!"Shouted/ Tom.

Example 2

O. R. T
Text: "Look, Jack!" shouted/ Tom.

7. Repetition

The student reads a text word or set of adjacent text words two or more times.

Example 1

O. R. boy-boy
Text: The boy rode his bike.

Example 2

O. R. The boy-The boy
Text: The boy rode his bike.

8. Multiple Miscue

The student generates a miscue that involves two or more consecutive text words which are not attended to separately either through repetition, self correction or intervening teacher feedback.

Example

O. R. "Look, Jack!" shouted Tom.
Text: "Oh Jane!" said Tom.

Cluster I: Miscue

Level B - Meaning Change

1. Minimal (M)
   The miscue alters the author's intended meaning only slightly.

   Example
   O. R. showed
   Text: "Look, Jack! shouted Tom."

2. Substantial (S)
   The miscue alters the author's intended meaning significantly.

   Example
   O. R. whales
   Text: "Look at those wheels."

3. Non-Meaningful (NM)
   The miscue results in a nonmeaningful sentence.

   Example
   O. R. Late
   Text: "Look at those wheels."

Note:

1. Mispronunciation miscues are always coded as nonmeaningful (NM).

2. Calls for help, hesitations, repetitions, and multiple miscues are not coded (NC) with respect to meaning change.

Level C - Syntactic Acceptability

1. Not acceptable (NA)
   The miscue does not conform at all to the syntactic constraints surrounding the expected response, or it is impossible to determine acceptability.

   Example
   O. R. turnip
   Text: "Then Tom turned to Bob and asked, . . ."

2. Minimally acceptable (MINA)
   The miscue conforms only to the syntactic constraints following the expected response.

   Example
   O. R. and
   Text: "Look at those wheels!"

3. Moderately acceptable (MODA)
   The miscue conforms only to the syntactic constraints preceding the expected response.

   Example
   O. R. me
   Text: "Look at those wheels."

4. Highly acceptable (HA)
   The miscue conforms totally to the syntactic constraints surrounding the expected response.

   Example
   O. R. tried
   Text: "Then Tom turned to Bob and asked . . . "

Note:

1. Mispronunciations, calls for help, hesitations, repetitions and multiple miscues are not coded (NC) with respect to syntactic acceptability.

Cluster I: Miscue

Level D - Grapho-Phonic Similarity

1. No similarity (NS)
   The miscue neither begins or ends with the same consonant (C-) or vowel (V-) sounds as the expected response.

   O. R. boy
   Text: snowman

2. Some initial similarity (SIS)
   The miscue begins with the same consonant (C-) or vowel(V-) sounds as the expected response.

   O. R. Bill
   Text: Bob

3. Some final similarity (SFS)
   The miscue ends with the same consonant (C-) or vowel (V-) sounds as the expected response.

   O. R. Sam
   Text: Tom

4. Strong initial similarity (STIS)
   The miscue begins with the same pair of initial sounds (CV-, CC-, or VC-) as the expected response.

   O. R. snap
   Text: snow

5. Strong final similarity (STFS)
   The miscue ends with the same pair of initial sounds (-CV, -CC, -VC) as the expected response.

   O. R. bird
   Text: yard

6. Some total similarity (STS)
   The miscue begins and ends with the same sounds as the expected response.

   O. R. lag
   Text: log

7. Strong total similarity (STTS)
   The miscue and expected response share a common initial pair and final sound; or they share a common final pair and initial sound.

   O. R. snarled O. R. lung
   Text: snorted Text: long

Note:

1. Insertions, omissions, calls for help, hesitations, repetitions, and multiple miscues are not coded (NC) with respect to Grapho-Phonic Similarity.

Cluster I: Miscue

Level E - Morpheme Level

1. Affix (A)
   The miscue differs from the expected response only at the affix level.

   O. R. shouts
   Text: shouted

2. Root (R)
   The misuce differs from the expected response at the root or base word level.

   O. R. showed O. R. grandma O. R. onto
   Text: shouted Text: grandmother Text: into

3. Both (B)
   The miscue differs from the expected response both at the root and affix levels.

   O. R. flying
   Text: ships

Note:

1. Calls for help, hesitations, repetitions, and multiple miscues are not coded (NC) with respect to Morpheme Level.

Cluster II

Student Reaction to Miscue

2 digit number

Level A Initial Type	Level B Kind
1. Continuation	NC
2. Repeated attempts	1. Exact attempt 2. Progressive attempt 3. Random attempt 4. Recycling attempt
3. Pause	NC
4. Call for help	NC
5. No opportunity for reaction	NC
6. Immediate self-correction	NC

Cluster II: Student Reaction

Level A - Initial Type

1. Continuation
   Student continues reading with no apparent attention to the miscue.

   O. R. take
   Text: "We can roll him over to Jack's yard."

2. Repeated attempts
   Student repeatedly attempts to identify the text word after initial miscue. 1. t-
   O. R. 2. take
   Text: "We can roll him over to Jack's yard."

3. Pause
   Student stops reading for a period of at least 2 seconds after the miscue occurs.
   O. R. take/(2)
   Text: "We can roll him over to Jack's yard."

4. Call for help
   Student requests teacher assistance after miscue has been made.

   O. R. take/(H)
   Text: "We can roll him over to Jack's yard."

5. No opportunity for reaction
   Teacher intervenes before student has an opportunity to demonstrate any of the above reactions.

   O. R. take/(T)
   Text: "We can roll him over to Jack's yard."

6. Immediate self-correction
   Student corrects the miscue immediately affording no opportunity for the teacher to intervene.
   roll
   O. R. take
   Text: "We can roll him over."

Note:

1. Student reaction is always coded with respect to the first behavior following the miscue.

Cluster II: Student Reaction

Level B - Kind

1. Exact repetition
   Student repeats the same miscue.

   O. R. 1. h
   2. h
   Text: house

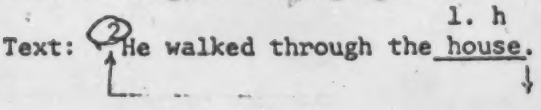
2. Progressive repetition
   Student makes repeated attempts at the miscue with each successive repetition more closely approximating the text word. Closer approximation can be with respect to either or both the grapho-phonic levels and the semantic.

   O. R. 1. h
   2. hou
   Text: house

3. Random repetition
   Student makes repeated attempts at the miscue with no apparent progression toward the text word either grapho-phonically or semantically.

   O. R. 1. go-
   2. tu-
   Text: house

4. Recycle repetition
   Following a miscue, the student returns to a previous point in the text and begins reading again.

Note:

1. Continuations, pauses, calls for help, no opportunity for reactions, and immediate self corrections are not coded (NC) with respect to this level of student reaction.

Cluster III: Feedback

9 digit number

Level A Type	Level B Form/Attending	Level C Form/Prompt	Level D Point of Interruption	Level E Timing of Interruption	Level F Length of Interruption
1. No Verbal Feedback	NC	NC	NC	NC	NC
2. Terminal feedback	NC	NC	1. BNSB 2. ANSB 3. FNSB	Secs___	NC
3. Sustaining feedback	1. None 2. Incidental 3. Significant Initial 4. Significant Interspersed	1. None 2. Simple Grapho-Phonic 3. Simple Context 4. Complex Grapho-Phonic 5. Complex Context	1. BNSB 2. ANSB 3. FNSB	Secs ___	Secs ___

Cluster III

Level A - type

1. No Verbal Feedback

   Teacher displays no verbal response that is directly related to and precedes the identification of the miscue under consideration.

2. Terminal Feedback

   Teacher identifies target word

3. Sustaining Feedback

   Teacher feedback that provides the reader with an opportunity to identify part or all of an expected response.

Cluster III

Level B - Form/Attending

1. None
   Teacher provides no attending feedback during the interaction with the student over this miscue.

2. Incidental
   Teacher includes attending kinds of statements as part of the interaction but does not use any of these to elicit a student response.

   e.g., 1. Incidental feedback. "Let's try harder." followed immediately by 2. Grapho-phonic feedback. "Look at the first letter again."

3. Significant Initial
   Teacher initiates the interaction over this miscue with significant attending feedback, i.e., feedback which focuses attention but is non-cue related. Significant is used to indicate that this attending feedback is given with the purpose of eliciting a student response and it may be given again at other points during the interaction.

4. Significant Interspersed
   Teacher includes significant attending feedback during the interaction at some point other than at the beginning.

Note:

1. No verbal feedback and terminal feedback are not coded (NC) with respect to this level.

Cluster III

Level C - Form/Prompt

1. None

Teacher provides no prompt associated with the attending feedback during the interaction with the student.

2. Simple Grapho-Phonic Cues

Teacher initiates a sustaining prompt which relates primarily to visual and/or sound related characteristics of the miscue and the target word.

O. R. Mark jumps (1)
Text: Mark jumped into the pool

(1) teacher: "Look carefully at the last two letters of the word."

O. R. Mark jumped into the tool (1)
Text: Mark jumped into the pool

(1) teacher: "What sound does the first letter of this word say?"

3. Simple Context Cues

Teacher initiates a sustaining prompt which relates primarily to the surrounding semantic (meaning) or syntactic (structural) features.

O. R. Mark slept in the pool (1)
Text: Mark jumped in the pool

(1) teacher: "Do you think Mark would sleep in a swimming pool?"

4. Complex Grapho-Phonic

Teacher initiates a sustaining prompt with a simple grapho-phonic cue followed at some time by a simple contect cue.

O. R. Mark jumped into the p..p..p (1)
Text: Mark jumped into the pool

(1) teacher: "What's the last letter in that word?"
student: "l"
teacher: "What would Mark jump into that would begin with a p sound and end with an l?"

Cluster III

Level C (continued)

5. Complex Context

Teacher initiates a sustaining prompt with a simple context followed at some time by a simple grapho-phonic cue.

O. R. Mark jumped into the p..p. (1) (1)

Text: Mark jumped into the pool.

teacher: "What could Mark be jumping into?"
student: "water"
teacher: "Yes, but look at the first letter of the word."

Note:

1. No verbal feedback and terminal feedback behaviors are not coded (NC) with respect to this level.

Cluster III

Level D - Point of Interruption

At what point in the text was the word identified?

1. Before next sentence break (BNSB)

   O. R. Mark leaped (1) (1) student: "jumped" SC

   Text: Mark jumped in the pool

2. At the next sentence break (ANSB)

   O. R. Mark leaped in the pool (1) (1) student: "jumped" SC

   Text: Mark jumped in the pool.

3. Following the next sentence break (FNSB)

   O. R. Mark leaped in the pool He swam to me (1) (1) student: "jumped" SC

   Text: Mark jumped in the pool He swam to me.

Note: 1. In the case where the miscue involves the last word in a sentence, the point of identification will be coded as #2 (ANSB).

2. No verbal feedback behavior is not coded (NC) with respect to this level.

Cluster III

Level E - Timing

How much time has elapsed (in seconds) between the miscue and the initiation of feedback?

O. R. Mark leaped in $_1$ teacher: "jumped"

Text: Mark jumped in the pool $_1$ $_2$ secs.

Note:

1. No verbal feedback behaviors are not coded (NC) with respect to this level.
2. On a hesitation miscue timing begins after the 3 seconds used in computing the hesitation miscue has elapsed.

Cluster III

Level F - Length

How much time has elapsed (in seconds between the initiation of teacher sustaining feedback and the resumption of reading by the student?

O. R. Mark jumped in the punch pool

Text: Mark jumped in the pool

Teacher: "Look at the word carefully."
Student: "pool"
Teacher: "good"
Student: (resumes reading)
Length Secs.: 4 seconds

Cluster IV: Miscue Outcome

5 digit number

Level A Resolution	Level B Point of Identification	Level C Timing of Identification	Level D Post Identification Discussion
1. teacher identifies word	1. BNSB 2. ANSB 3. FNSB	Secs ___	1. Yes 2. No
2. student identifies word	1. BNSB 2. ANSB 3. FNSB	Secs ___	1. Yes 2. No
3. student continues reading with miscue left uncorrected	NC	NC	NC

Cluster IV

Level A - Resolution

1. Teacher identifies word (or corrects a student's miscue as in the case of an insertion).

2. Student self-corrects his own miscue.

3. Student continues reading with miscue left uncorrected.

Cluster IV

Level B - Point of Identification

At what point in the text was the word identified?

1. Before next sentence break (BNSB)

O. R. Mark leaped (1) (1) student: "jumped" SC

Text: Mark jumped in the pool

2. At the next sentence break (ANSB)

O. R. Mark leaped in the pool (1) (1) student: "jumped" SC

Text: Mark jumped in the pool.

3. Following the next sentence break (FNSB)

O. R. Mark leaped in the pool He swam to me (1) (1) student: "jumped"S

Text: Mark jumped in the pool He swam to me

Note: 1. In the case where the miscue involves the last word in a sentence, the point of identification will be coded as #2 (ANSB).

2. When the miscue is left unidentified this level is not coded (NC).

Cluster IV

Level C - Timing of Identification

How much time has elapsed (in seconds) from the miscue to where the word was identified?

O. R. Mark leaped in the pool. (1) student: "jumped" SC

Text: Mark jumped in the pool. 1.00 sec.

Note:

1. When the miscue is left unidentified this level is not coded (NC).

Level D - Post Identification Discussion

Was there teacher verbal response that is both related to the miscue and delivered after the identification of the target word.

1. yes
2. no

Note:

1. When the miscue is left unidentified, this level is not coded (NC).

Videotape # _____ Page _____ of _____

Teacher Subject Name _____

Coder Name _____

Coding Grid

Words Correct to Miscue	Miscue Number	Observed Response (O. R.)	I						II		III						IV			
			A	B	C	D	E	F	A	B	A	B	C	D	E	F	A	B	C	D

Appendix H

The FORMAS Taxonomy

(field version)

FORMAS

MISCUE NUMBER	EXPECTED RESPONSE	OBSERVED RESPONSE	MISCUE: TYPE: INSERTION	OMISSION	SUBSTITUTION	MISPRONUNCIATION	DON'T KNOW	HESITATION	REPETITION	MISCUE: CHARACTERISTICS: LITTLE CHANGE IN MEANING	SUBSTANTIAL CHNG IN MEANING	HIGH GRAPHO-PHONIC	LOW GRAPHO-PHONIC	TEACHER REACTIONS: CONTINUATION	REPEATED ATTEMPTS	PAUSE	CALL FOR HELP	NO OPPORTUNITY	IMMEDIATE SELF CORRECTION	TEACHER VERBAL FEEDBACK: TYPE: NO VERBAL FEEDBK	SUSTAINING FBK	TERMINAL FEEDBK	FORM: ATTENDING	GRAPHO-PHONIC	CONTEXT	TIMING: LESS THAN 3 SEC.	MORE THAN 3 SEC.	POINT: BEFORE NEXT SENTENCE BREAK	AT THE NEXT SENTENCE BREAK	AFTER NEXT SENTENCE BREAK	VERBAL FEEDBACK: TYPE: NONE	SOLICITED	UNSOLICITED	TIME: LESS THAN 3 SEC.	MORE THAN 3 SEC.	POINT: BEFORE NSB	AT NSB	AFTER NSB	RESOLUTION: TEACHER IDENTIFIES WD.	STUDENT IDENTIFIES WD.	OTHER IDENTIFIES WD.	UNCORRECTED MISCUE
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MULTIPLE MISCUE																																										
%																																										

TEACHER _____
GROUP _____
STUDENT(S) 1 _____ 6 _____
2 _____ 7 _____
3 _____ 8 _____
4 _____ 9 _____
5 _____ 10 _____
DATE _____
TEXT _____

PERCENT: 90 80 70 60 50 40 30 20 10

MISCUE TYPE | MEANING CHANGE | GRAPHO-PHONIC SIMILARITY | STUDENT BEHAVIOR FOLLOWING MISCUE | FEEDBACK TYPE | FEEDBACK FORM | FEEDBACK TIMING | POINT OF FEEDBACK | FEEDBACK TYPE | FEEDBACK TIMING | POINT OF FEEDBACK | MISCUE RESOLUTION

HOFFMAN and BAKER

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FORMAS Definitions

1. Miscue number - the sequence for each miscue in relationship to other coded miscues.
2. Expected response - a text word and/or its numerical position in the sequence of text words.
3. Observed response - a student response and/or the identification number of the student reading.
4. Miscue - an observed response that differs from an expected response.
5. Miscue type - classification scheme for observed miscues.
6. Insertion - the reader inserts a word or an affix which is not present in the text.
7. Omission - the reader omits a word or an affix which is present in the text.
8. Substitution - the reader substitutes a word or an affix for one which is present in the text.
9. Mispronunciation - the reader substitutes a partial or complete nonsense utterance for a word or affix which is present in the text.
10. Don't know - the reader stops before attempting a word and verbally requests teacher assistance.
11. Hesitation - the reader pauses before attempting a word for at least 3 seconds or the teacher intervenes before the 3 second period elapses.
12. Repetition - saying a text word or set of adjacent text words two or more times.
13. Miscue characteristics - qualitative features of each particular type of miscue.
14. Little meaning change - the miscue alters the author's intended meaning only slightly.
15. Substantial meaning change - the miscue alters the author's intended meaning significantly.
16. High grapho-phonic similarity - at least 2 of the 3 parts of the observed response conform to the expected response.
17. Low grapho-phonic similarity - less than 2 of the 3 parts of the observed response conform to the expected response.
18. Reactions - how the reader initially deals with his miscue.
19. Continuation - student continues reading with no apparent attention to the miscue.
20. Repeated attempts - the reader makes repeated attempts at identifying the text word.
21. Pause - student stops reading for at least 2 seconds after the miscue occurs.
22. Call for help - reader explicitly requests teacher assistance after miscue has been made.

23. No opportunity for reaction - teacher or another student intervenes within 2 seconds of the miscue occurring.

24. Immediate self-correction - student self corrects the miscue immediately.

25. Teacher verbal feedback - initial verbal teacher behavior that follows a miscue and reader's reaction to the miscue and relates to the expected or observed response.

26. Feedback type - the general nature of teacher feedback.

27. No verbal feedback - teacher displays no verbal feedback strategy which is directly related to the identification of the target word.

28. Sustaining feedback - teacher verbal feedback that provides the reader with the opportunity to identify part or all of an expected response.

29. Terminal feedback - teacher identifies target word or calls on another word.

30. Feedback form - specific characteristics of sustaining teacher feedback.

31. Attending - sustaining feedback which is noncue focusing, e.g., "try again."

32. Grapho-phonic - sustaining prompt which initially relates to visual and/or sound related characteristics of the miscue and/or the expected response.

33. Context - a sustaining prompt which initially relates to the surrounding semantic (meaning) or syntactic (structural) features.

34. Time of teacher feedback - the time in seconds that has elapsed between the miscue and the initiation of feedback.

35. Less than 3 seconds - time period which intervenes between the occurrence of a miscue and teacher feedback.

36. More than 3 seconds - time period which intervenes between the occurrence of a miscue and teacher feedback.

37. Point of feedback - sentence position relative to the miscue at which the teacher provides feedback.

38. Before the next sentence break - teacher feedback offered before the student completes reading the sentence containing the target miscue.

39. At the next sentence break - teacher feedback offered when the student completes reading the sentence containing the target miscue.

40. After the next sentence break - teacher feedback offered when the student has read beyond the sentence containing the target miscue..

41. Student verbal feedback - verbal behavior of a student other than the reader relating to the expected or observed response.

42. Student feedback type - the general nature of student verbal feedback.

43. None - no other student offers verbal feedback directly related to the miscue.

44. Solicited - a student's verbal feedback that is requested by a teacher.

45. Unsolicited - verbal feedback that is volunteered by a student and not requested by a teacher.

46. Time of student feedback - the time in seconds that has elapsed between the miscue and the initiation of a student's feedback.

47. Less than 3 seconds - time period which intervenes between the occurrence of a miscue and student feedback.

48. More than 3 seconds - time period which intervenes between the occurrence of a miscue and student feedback.

49. Point of feedback - sentence position relative to the miscue at which a student provides feedback.

50. Before the next sentence break - other student feedback offered before the reader completes the sentence containing the target miscue.

51. At the next sentence break - other student feedback offered when the reader completes the sentence containing the target miscue.

52. After the next sentence break - other student feedback offered after the reader has progressed beyond the sentence containing the target miscue.

53. Miscue resolution - whether or not the miscue is corrected and the individual correcting the miscue.

54. Teacher identifies word - teacher identifies word (or corrects a student's miscue).

55. Student identifies word - reader self-corrects his own miscue.

56. Other identifies word - person other than the teacher or student reading identifies target word.

57. Uncorrected miscue - student continues reading with miscue left uncorrected.

58. Multiple miscue - a tallying of student generated miscues that involves two or more consecutive text words which are not attended to individually either through self correction or teacher feedback.